

PONIZOVSKIY, I.S.

Remark on commutative semigroups. Dokl. AN SSSR 142 no.6:1258-
1260 F :62. (MIRA 15:2)

1. Predstavleno akademikom A.I.Mal'tsevim.
(Groups, Theory of)

PONIZOVSKIY, I.S.

Homomorphisms of finite inverse semigroups. Usp. mat. nauk 18
no.2:151-153 Mr-Apr '63. (MIRA 16:8)
(Groups, Theory of)

PONIZOVSKIY, I.S. (Leningrad)

Semigroups with given ideal chains. Mat. sbor. 61 no.4:377-
388 Ag '63. (MIRA 16:9)

AUTHOR: Ponizovskiy, I.S.

SOV/42-13-6-17/33

TITLE: On Irreducible Matrix Representations of Finite Semigroups
(O matrichnykh neprivodimyykh predstavleniyakh konechnykh
polugrupp)

PERIODICAL: Uspekhi matematicheskikh nauk, 1958, Vol 13, Nr 6, pp 139-144 (USSR)

ABSTRACT: The author considers the number of irreducible matrix representations of a finite semigroup S in a given field P . Let $P(S)$ be an algebra over P , the basis elements of which are all elements of S different from zero, where the multiplication is carried out like in S . The given problem is reduced to the same problem for the ring of semigroups $P(S)$. For $P(S)$ certain factor semigroups L_i are constructed uniquely, which are completely simple semigroups [Ref 1]. The sought number equals $\sum m_i$, where m_i is the number of non-equivalent representations of the semigroups L_i irreducible over P .

There are 2 references, 1 of which is American, and 1 English.

SUBMITTED: April 12, 1957

Card 1/1

AUTHOR: Ponizovskiy, I.S. (Leningrad) 39-45-1-1/6

TITLE: On the Determinant of a Matrix With Elements of a Certain Ring
(Ob opredelitele matrits s elementami iz nekotorigo kol'tsa)

PERIODICAL: Matematicheskii Sbornik, 1958, Vol 45, Nr 1, pp 3 - 16 (USSR)

ABSTRACT: Let K be a ring with unit e and zero element 0 , let $2e \neq 0$ and let K satisfy the minimum condition. Let K_n be the complete ring of the matrices of order n over K ; GL_n the group of all invertible matrices from K_n , K_n^* the multiplicative semigroup of K_n , ϕ an homomorphism of K_n^* into a certain abelian semigroup S with unit under which the unit of K_n^* is mapped into the unit of S . The element $\phi(M)$ of S is denoted as ϕ -determinant of the matrix $M \in K_n^*$. The author shows that for determinants thus defined the following classical properties remain in a somewhat varied form: Behavior under reversal of lines or rows, behavior under multiplication of lines or rows with an element $b \in K$, behavior under addition of a line or row multiplied with a constant to another one. Fur-

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On the Determinant of a Matrix With Elements of a Certain Ring 39-45-1-1/6

thermore a construction is proposed which allows to calculate some special but important determinants and the inverse matrix (if this exists). This construction gives the characters of first order of the group U of all inversible matrices of given order over a ring K . These characters generate the subgroup U . The number of generators of U is determined and it is shown that there exist, besides the obtained characters, still further characters of first order of U . There are 4 non-Soviet references, 2 of which are American, 1 French, and 1 German.

SUBMITTED: September 3, 1955

AVAILABLE: Library of Congress.

Card 2/2

L 21320-65 EWT(d) IJP(c)/ESD(dp)

ACCESSION NR: AP5004474

S/0038/64/028/005/0989/1002

AUTHOR: Ponizovskiy, I. S.

TITLE: Representing inverse semigroups by partially mutual, univariate transformations

SOURCE: AN SSSR. Izvestiya. Seriya matematicheskaya, v. 28, no. 5, 1964, 989-1002

TOPIC TAGS: group theory

Abstract: In the paper the author gives the exact (except for minor de-
tails) description of inverse semigroups for a particular

ASSOCIATION: none

SUBMITTED: 03May62

ENCL: 00

SUB CODE: MA

NO RIF SOV: 001

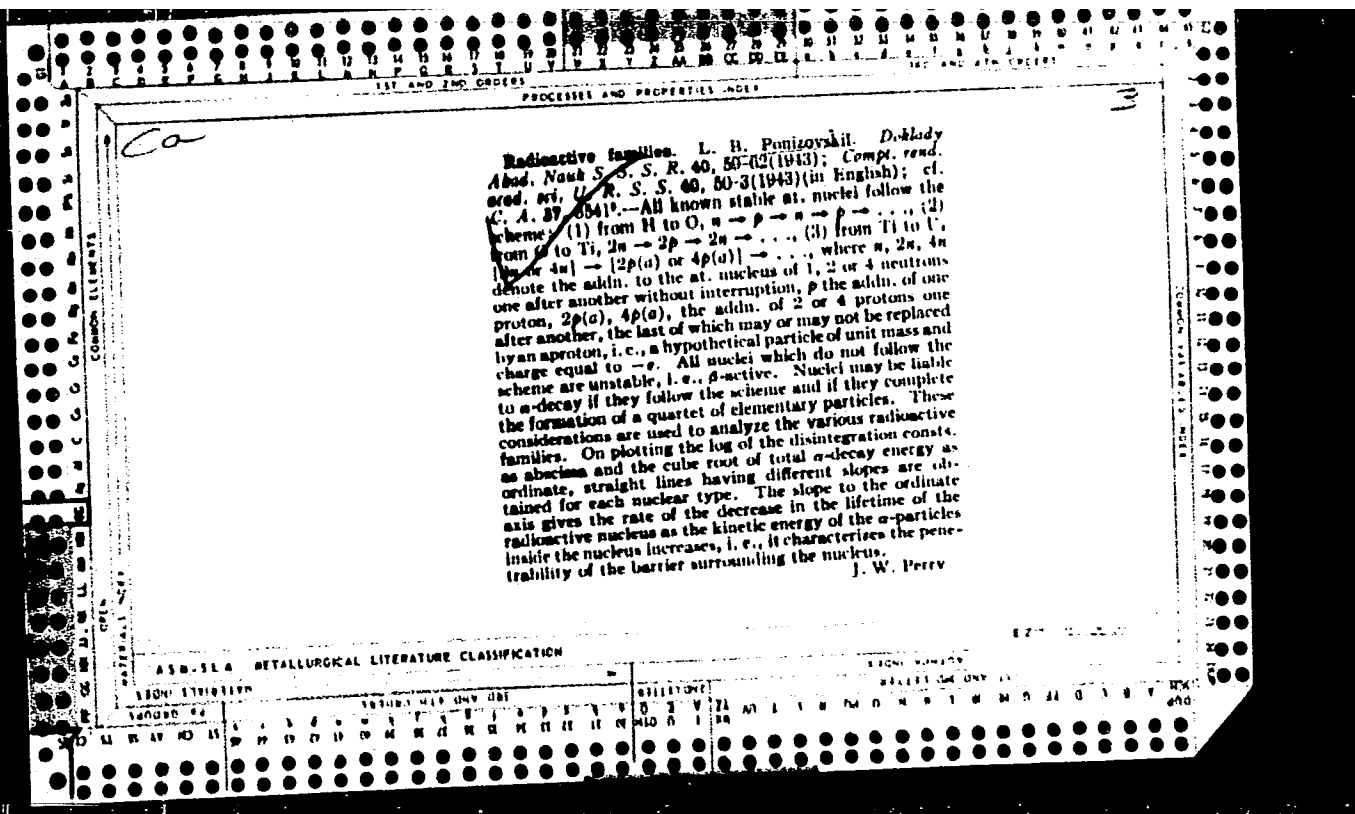
OTHER: 001

JPRS

Card 1/1

397. Neptunium and Plutonium, by L. A. Ponisovskiy. Priroda, No. 4, April 1946. 4 p.

The author presents a non-technical account of the production and chemistry of the transuranic elements neptunium and plutonium. References are made to the Smyth report.



See also.

Ab. 1. Sub. 100000

Relative abundance of isotopes. L. B. Pogosovskii (*Compt. rend. Acad. Sci. U.R.S.S.*, 1943, 41, 104—108).—The max. no. of identical particles (neutrons or protons) added successively to a stable nucleus is 4. In a no. of cases the second or fourth proton is substituted by an apatron (identical with the proton except in sign). It is shown that the max. no. of stable isotopes of one element is 10, formed by addition of 1, 2, 3, or 4 neutrons, 1 or 2 protons, and an apatron on the main line or on branches. There is a periodicity of mass defect from the last particle added which is reflected in isotope abundance, in the main line of nuclear building. Nuclei on the branches of the main line are less abundant than the main nuclei of the same type, and nuclei due to addition of two protons or two neutrons at once are very rare. These rules are shown to hold true for 100 cases out of 116 where relative abundance is known. L. J. J.

Ca

Relative abundance of isotopes. L. B. Ponizovskii. *Doklady Akad. Nauk S. S. S. R.* 41, 108 (1943); *Comm. rend. acad. sci. U. R. S. S. R.* 41, 101 (1943) (in Russian).—When at. nuclei are classified according to the type and no. of elementary particles, such as neutrons and protons, added to form the nuclei from simpler ones (cf. preceding abstr.), it is found possible to establish qual. rules for abundance of the at. nuclei. These rules are shown to hold for 100 out of 110 cases for which the relative abundance of isotopes is known. The original picture of the abundance of isotope nuclei has changed considerably owing to natural radioactivity. This point is illustrated by examples. J. W. Perry

ca

A new standard of wave length. I. N. Pomroyvskii.
Doklady Akad. Nauk S. S. R. 41, 1068 (1943). *Compt. rend. Acad. sci. U. R. S. S.* 41, 158 (1943) (in English);
C. A. 37, 10819. — A discussion is given of the advantages of using, as a wave-length standard, an infrared spectral line measured by interference methods using an app. which is described. On examining the spectra of Hg, Xe, Cd, Kr, Zn, Ar, Ne and He, the sharpest interference patterns were observed with the Kr line at 0.751.760 Å.
J. W. Perry.

PONIZOVSKIY, L. B.

PA 36T70

USSR/Nuclear Physics - Uranium
Nuclear Physics - Isotopes

Aug 1946

"Z95 and Z96, New Transuranic Elements," L. B.
Ponizovskiy, 1 $\frac{1}{2}$ pp

"Priroda" No 8

In answer to many questions Seaborg and Hamilton have disclosed that they have identified two new elements, Z95 and Z96, which are both transuranic elements. The first indication on Z96 was at Berkeley where the cyclotron generated an isotope 96^{242} . Author briefly describes the experiments and the results obtained.

ID

36T70

PONIZOVSKIY, L. B.

PA 9/49T81

USSR/Nuclear Physics - Atomic Power Oct 48
Nuclear Physics - Nuclei, Atomic

"Energy of the Atomic Nucleus," L. B. Ponizovskiy,
11 pp

"Priroda" No 10

General account of development of atomic energy.
Various simple formulae utilized for computing
basic energies of atoms. Structure of atom and
some fundamental uses for atomic energy.

9/49T81

PA 47/49T99

PONIZOVSKIY, L. B.

USSR/Nuclear Physics
Particles, Elementary
Varitrons
Jan 49

"Scientific Innovators," L. B. Ponizovskiy, 4 pp
"Priroda" No 1

Alkhanov brothers conducted experiments at a mountain station (3,250 meters above sea level) where a large Soviet-constructed magnet was erected. Succeeded in separating cosmic rays according to impulses, and in counting the relative number of these strongly ionizing particles by the method of magnetic deviation and combinations of absorbing lead filters. The

47/49T99

USSR/Nuclear Physics (Cont'd)
Jan 49

new particles had different masses. Particles were observed with masses 500, 1,000 and 2,000 times the electron mass. They were not similar to electrons or mesons. Some were even heavier than protons, and particles with both signs were observed. These completely new cosmic particles they called varitrons.

47/49T99

1. LUYZOV, A. V.; PONIZOVSKIY, L. B.
2. USSR (600)
4. Luyzov, A. V.
7. Book on the history of the atomic theory ("In the nidi of matter." A. V. Luyzov, L. B. Ponizovskiy. Reviewed by M. I. Radovskiy.) Priroda, 42, no. 5, 1953.
9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

FONIZOVSKIY, L. M.

Hosiery

Temperature regulation for stabilizing caprone stockings in apparatus model
TPS-K1 and TPS-K2. Leg. prom. 12 no. 9, 1952

9. Monthly List of Russian Accessions, Library of Congress, December ¹⁹⁵²~~1953~~, Uncl.

РЕНТГЕНОВЫЙ МАТЕРИАЛ
LIVSHITS, E.M., inzhener; PONIZOVSKIY, M.M., inzhener; KHARKIN, Yu.A., inzhener;
LOGINOV, B.I., inzhener; RAFALOVICH, I.I., inzhener; STEPANOV, G.G.,
inzhener; KOZYAKIN, A.N., inzhener; RABINOV, B.S., inzhener

Air leaks in convective shafts of boiler installations. Elek.sta.26
no.10:38-47 0 '55. (MIRA 8:12)

1. Glavnoye upravleniye elektrostantsiy i elektrosetey Urala i Vostoka
Ministerstva elektrostantsiy (for Loginov) 2. Rostovenergo (for Rafa-
lovich) 3. Rostovenergoremont (for Stepanov) 4. Leningradskaya elektro-
energeticheskaya sistema (for Kozyakin and Rabinov)
(Boilers)

AID P -3770

Subject : USSR/Electricity

Card 1/2 Pub. 26 - 12/29

Authors : Livshits, E. M., Ponizovskiy, M. M., and Kharkin,
Yu. A., Engs.

Title : Air ~~indraft~~ in **convection** shafts of boiler aggregates
(Discussion)

Periodical : Elek. sta., 10, 38-44, 0 1955

Abstract : The Editors in a note preceeding the article explain that the problem presented was subject to detailed discussion because of its importance. They ask for further comments. The authors present a study of losses occuring in the heat-absorbing surfaces of boiler aggregates and attempt to define conditions of optimum efficiency. In particular, they try to find ways to avoid air indrafts which cause considerable heat losses in the several heat-ducts of the aggregates. They recommend the tightest possible construction of all the duct work and piping, with low frictional resistance

AID P - 3770

Elek. sta., 10, 38-44, 0 1955

Card 2/2 Pub. 26 - 12/29

and good heat insulation. One photograph, 1 diagram,
and 18 drawings.

Institution : None

Submitted : No date

LIPCVETSKIY, G.Z.; PONIZOVSKIY, N.D.

Conveyer furnace for heating and cooling molds for precision casting.

Lit. proizv. no.3:17 Mr '61.

(MIRA 14:6)

(Precision casting)

PONIZOVSKIY, V.

Wings of the Communist Youth League. Grazhd. av. 21 no.7:8-9

J1 '64.

(MIRA 18:4)

1.Spetsial'nyy korrespondent "Komsomol'skoy pravdy".

PONIZOVSKIY, V.M.

Generator for the magnetic suspension of ferromagnetic rotors.
Prib. i tekh.eksp. 10 no.5:234-235 S-O '65.

(MIRA 19:1)

1. Permskiy gosudarstvennyy universitet. Submitted September
26, 1964.

PONIZOVSKIY, V.M.

AUTHOR: Ponizovskiy, V.M.

120-4-20/35

TITLE: Production of High Centrifugal Fields (Polucheniye
bol'shikh tsentrobezhnykh poley)

PERIODICAL: Pribery i Tekhnika Eksperimenta, 1957, No.4,
pp. 69 - 72 (USSR)

ABSTRACT: In Refs. 1 - 4, methods of obtaining large centrifugal fields by spinning steel balls of small diameter were described. Beams et al. (Ref.2) have applied this method to a study of the strength of steel balls and various coatings. However, the experimental set-up was not fully described in Ref.2 and for this reason the present author has repeated the work using an apparatus of his own design. The apparatus and the associated electronics are shown schematically in Figs. 1, 2 and 3. The steel balls are spun by means of a rotating magnetic field in a vacuum.

Measurements were carried out on steel balls having diameters between 2.5 and 4.75 mm. Results of measurements are given in Table 1. Calculations based on these results were carried out using the method of Chree (Ref.5). It was assumed that the deformation was elastic right up to the disintegration.

Table 2 shows that the calculated relative deformation of a ball before disintegration is small and is of the order of 0.5%.

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Production of High Centrifugal Fields.

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The calculated maximum allowable stress at the centre of a ball is about 22 800 kg/cm² and is somewhat higher than the actual tension. Probably, the layer surrounding the centre of the ball begins to flow just before the disintegration and this lowers the stress..

In comparison with the data on American balls (Ref.2), the balls used in the present work disintegrate at lower rates of revolution and maximum stresses. The maximum stresses are less by 15%. There are 4 figures, 2 tables and 5 references, 1 of which is Slavic.

ASSOCIATION: **Molotov State University im. A.M. Gor'kiy**
(Molotovskiy gosudarstvennyy universitet im. A.M. Gor'kogo)

SUBMITTED: February 12, 1957.

AVAILABLE: Library of Congress
Card 2/2

PONIZOVSKIY, Vladimir Mironovich; DEREVIANKINA, L.A., red.;
MARTYNOVA, V.A., mlad. red.

[Scarlet pearl of the Antilles] Alaia zhemchuzhina Antil.
Moskva, "Mysl'," 1964. 79 p. (MIRA 17:8)

PONIZOVSKIY, V.M.

Producing strong centrifugal fields. Prib. i tekhn. eksp. no. 4:
69-72 J1-Ag '57. (MIRA 10:10)

1. Molotovskiy gosudarstvennyy universitet im. A.M. Gor'kogo.
(Ball bearings--Testing) (Centrifugal force)
(Electronic measurements)

ПОНИЗОВСКИЙ, В. М.

Translation from: Referativnyy Zhurnal, Elektrotekhnika, 1957, Nr 1, 112-1-947
p. 152 (USSR)

AUTHOR: Ponizovskiy, V. M.

TITLE: Preliminary Investigation of Certain Electric Processes in
the Circuit of a Two-Coil Magneto of the Flywheel Type
(Predvaritel'noye issledovaniye nekotorykh elektricheskikh
protssessov v tsepi dvukhkatushechnogo magneto makhovichnogo
tipa)

PERIODICAL: Uch. zap. Molotovsk. un-ta, 1955, v. 9, Nr 4, pp. 97-100

ABSTRACT: Bibliographic entry

Card 1/1

YEGOROCHKIN, A.N.; KHIDEKEL', M.L.; PONOMARENKO, V.A.; ZUYEVA, G.Ya.;
SVIREZHEVA, S.S.; RAZUVAYEV, G.A.

Proton magnetic resonance spectra of some substituted germanium
hydrides. Izv. AN SSSR Ser.khim. no.10:1865-1868 0 '63.

(MIRA 17:3)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom
gosudarstvennom universitet, Institut khimicheskoy fiziki AN SSSR
i Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.

"KHIDEKEL', M. L.; SHUB, B. R.; RAZUVAYEV, G. A.; ZADOROZHNYI, N. A.;
PONOMARENKO, V. A.

2,4,6-tris (trimethylsilyl)-1-phenoxy, a monomer radical relatively
resistant to oxygen. Izv AN SSSR Ser Khim no. 4:776 Ap '64.
(MIRA 17:5)

1. Institut khimicheskoy fiziki AN SSSR, Gor'kovskiy gosudarstvennyy universitet im. N. I. Lobachevskogo i Institut organicheskoy khimii im. N. D. Zelinskogo AN SSSR.

YEGORCHKIN, A.N.; KHIIDEKEL', M.L.; PONOMARENKO, V.A.; ZADOROZHNYI, N.A.

Certain regularities in proton magnetic resonance spectra of
trisubstituted silanes. Izv. AN SSSR Ser.khim. no.10:1868-1871 0
'63: (MIRA 17:3)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom
gosudarstvennom universitet, Institut khimicheskoy fiziki AN SSSR
i Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.

NEDOSPASOV, A. V.; PONOMARENKO, Yu. B.

Amplitude and shape of strata. Zhur, eksp. i teor. fiz. 46 no.
3:926-928 Mr '64. (MIRA 17:5)

1. Moskovskiy fiziko-tekhnicheskii institut.

PONIZOVSKY, Z. L.

"Concerning the Relationship of the Anomalies of the Half-Day with the Conditions of the Ionosphere," Dok. AN, 26, No. 9, 1940.

Department of Atmosphere, Institute of Theoretical Geophysics, AS USSR.

PONIZOVSKY, Z. L.

"On Polarization Anomalies in Scattered Light of a Twilight Sky as
Connected with the Condition of Ionospheres," Dok. AN, 37, No. 7-8, 1942.

Institute of Theoretical Geophysics, AS USSR.

21993

S/026/61/000/007/002/002
D051/D112

3, 2410 (1062, 1395, 1559)

AUTHORS: Korets, M.A.
Ponizovskiy, Z.L.

TITLE: Galactic wanderers

PERIODICAL: Priroda, no.7, 1961, 45-52

TEXT: In this article the authors try to acquaint the general reader with the nature of cosmic radiation, its scientific background, and the special problems connected with this phenomenon. Even the slowest and heaviest particles of cosmic radiation detected near the Earth's surface have a velocity exceeding 100,000-200,000 kilometers per second. Therefore, in addition to its importance for astrophysics, cosmic radiation plays a considerable role for the study of elementary particles and their interaction at high energies. The largest accelerator of the world permits obtaining particles of an energy of about 30 bev, whereas the energy spectrum of cosmic radiation ranges from 1 to 10,000,000,000 bev. All elements lighter than iron are constituents of cosmic radiation, but their relative number is vastly different from their distribution in the universe. The universe contains about 90% hydrogen, about 9% helium, and only 1% of other elements. In

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cosmic rays, however, the number of nuclei of elements heavier than helium is 5-6 times greater than in the universe. The number of Li, Be, and B nuclei permits establishing that the cosmic rays passed through an interstellar space medium of a density of 5-10 g/cm². Such a change in the distribution of the elements shows that the assumption of acceleration and generation of mostly heavy nuclei of the iron and chromium group in the sources of cosmic radiation does not contradict experimental data. It seems certain that cosmic rays contain only a small number of nuclei with atomic weights from 17 to 23. If this deficiency cannot be explained by the character of Fe and Cr fission due to collisions with protons and He nuclei in the interstellar medium, the mentioned assumption will not hold. Experiments such as bombarding iron with proton beams and alpha-particles may help to solve this problem. The energy spectrum of the primary particles is particularly determined by their deflection in the geomagnetic field. The higher the energy, the lower the number of particles possessing it, the character of this spectrum being independent from the atomic weight of the particle. Particles of a kinetic energy below 0.2-0.4 bev. could not be observed in primary cosmic radiation. Apparently, the magnetic fields coming from the Sun together with the corpuscular streams entirely remove this weak component of cosmic radiation from the solar

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system. On the other hand particles of an energy above 15 bev are very rare, and no conclusions can be drawn concerning their energy spectrum. At present, installations with an effective area of some square kilometers, which will permit detecting one 10^{19} ev particle per day, are being created. Photons could not be observed in primary cosmic radiation and electrons and positrons could not be recorded near the Earth. In the Galaxy, however, electrons play an important role as component parts of cosmic rays. As regards the problem of preferential directions of cosmic radiation, some scientists were of the opinion that the Galactic plane or the axis of that spiral sleeve of the Galaxy which contains the solar system may be considered as such directions. In this connection it must be observed that not only galactic but also solar cosmic particles arrive on the surface of the Earth. If the comparatively small solar contribution is excluded, it will appear that the Earth receives from all sides a homogeneous flux of cosmic particles, the error of measurement not being above 1-3%. This means that cosmic radiation in the Galaxy is isotropic. From the Galaxy only signals from electrons and positrons, which are constituent parts of the cosmic rays, can be recorded on the Earth. All cosmic radiation is thermal and nonthermal. The basic part of nonthermal radiation is connected with the acceleration of relativistic electrons in the magnetic fields of the Galaxy. Because the intensity of these fields is about 10^{-5} gauss,

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the acceleration of electrons of about 10^9 ev produces a radiation on meter waves. For heavier particles such a radiation is incomparably weaker and nearly imperceptible against the background of electron radiation. In contrast to former conceptions, radioastronomic observations show that 80-90% of all cosmic radiation comes from a galactic "halo" or "corona" (Fig.3) of spherical form with a radius of 30,000-50,000 light years ($3 \pm 5 \cdot 10^{22}$ cm) and basically containing ionized hydrogen of a mean density of 1 atom per 100 cm^3 . The volume of the halo is $1 \pm 5 \cdot 10^{68} \text{ cm}^3$. The galactic disk (Fig.3) is considerably thicker than was assumed before (according to former conceptions the disk had a thickness and a diameter of 1,000-2,000 and about 100,000 light years, respectively). Its density of ionized hydrogen amounts to about 1 particle per cm^3 . Finally there is a region of 400-900 light years in diameter which surrounds the galactic center. This region is immersed in a "dense" ($1 \pm 2 \text{ atoms/cm}^3$) cloud of neutral hydrogen of 300-400 $\pm 2,000 \pm 2,500$ light years. Its star concentration is 500;1,000 times higher than in the vicinity of the Sun. All this mass "rapidly" revolves around the galactic center (during 30,000 years one revolution at a distance of 300 light years). In the center itself is the galactic nucleus of about 30 light years in diameter with ionized hydrogen at a concentration of up to 1,000 protons per cm^3 . Such a nucleus was also detected in some other galaxies, e.g. in the Andromeda

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nebula. Radio maps obtained through measurements on 21 cm waves show that the spiral structure of the Galaxy begins at a distance of 10,000 light years from the center. It can be assumed that these spiral "sleeves" formed under the effect of a magnetic field. During its 10 billion years of existence the Galaxy has performed about 50 revolutions, which resulted in frequent breaks in the sleeves, so they cannot serve as magnetic traps for cosmic rays. V.L. Ginzburg, I.S. Shklovskiy, and other scientists are of the opinion that supernovae and, possibly, novae within the Galaxy are the main source of cosmic radiation, because the 200 billion stars of the Galaxy cannot produce cosmic rays with a total energy of 10^{39} - 10^{40} erg/sec, an amount which is considered as necessary to maintain a constant flow of cosmic radiation on the observed energy level. The burst of a supernova is tremendous. The full energy, for instance, freed in the nebula Cassiopeia A (10,000 light years from the Earth) is about 10^{51} - 10^{52} erg. It can be assumed that about one tenth of this amount went to the production of cosmic rays. Such an "injection" would compensate the energy losses of all cosmic rays in the Galaxy during 3,000-30,000 years. Most supernovae have less explosion energy, but even a mean energy a hundred times less would be sufficient for maintaining the cosmic radiation at a total energy of 10^{56} - 10^{57} erg in a galaxy. But, however, intense may be the production of cosmic rays beyond the limits of our galaxy,

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cosmic particles coming from outside are of no practical importance for its internal balance. Only if particles with an energy of 10^{18} - 10^{19} ev proved to be protons and not heavy nuclei could a proton "injection" into the Galaxy be assumed. The mass of neutral hydrogen near the galactic plane is $2.8 \cdot 10^{42}$. Assuming that the interstellar gas consists of 93% hydrogen and 7% helium and adding the mass of gas of the halo, the mean density is $\frac{3.6 \cdot 10^{42}}{1 \pm 5 \cdot 10^{68}} = 71 \cdot 10^{-27}$

$\pm 3 \cdot 10^{-26}$ g/cm³, which corresponds to 3-15 particles per 1,000 cm³. At a concentration of 1 particle per 100 cm³ in the interstellar gas and a particle speed nearly equal to light velocity the time until collision of various cosmic particles with the interstellar gas can be calculated:

protons (hydrogen)	3,800 million years
alpha-particles (helium)	940 million years
nuclei with atomic number 3-5	510 " "
nuclei with atomic number 6-9	360 " "
nuclei with atomic number above 10	250 " "
iron nuclei	140 " "

As these times are considerably below the age of the Galaxy, it follows that all presently existing cosmic rays did not originate together with it but at later

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Galactic wanderers

periods. Whether cosmic rays can escape from the Galaxy depends on the configuration of its magnetic fields and on the conditions at its boundaries. If in reality there should exist an "open" model of the Galaxy with part of the magnetic lines of force extending into the intergalactic space, an escape would be possible. But for the overwhelming majority of particles the paths to be covered would be so long and complex that the indicated lifetime would not be sufficient. In this way, also in the case of absence of reflection at the Galaxy boundaries, the loss in cosmic rays would be inconsiderable. The total number of cosmic particles at present in the Galaxy is estimated at 10^{58} - 10^{59} . There are 6 figures.

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Fig.3: Scheme of galactic radio noise (not to scale). Dimensions in parsec (ps)

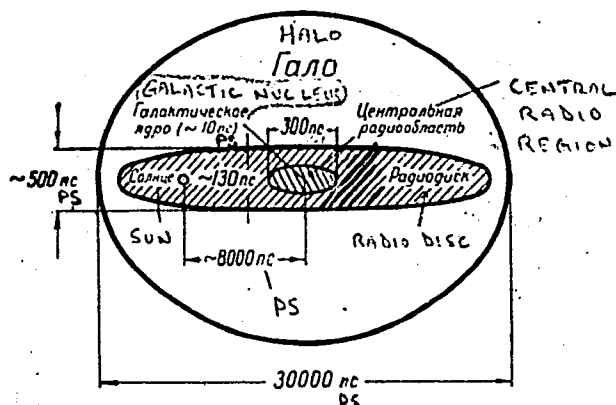


Рис. 3. Схема радионалучения Галактики (выполнена не в масштабе). Размеры в парсеках (ps)

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KORETS, M.A. (Moskva); PONIZOVSKIY, Z.L. (Moskva)

Radiation belts and auroras. Priroda 51 no.11:76-77
N '62. (MIRA 15:11)

(Auroras)
(Van Allen radiation belts)

tion, with cosmic interplanetary and

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L 27309-65

ACCESSION NR: AP5003586

location is more accurate than radiolocation, as beams are less dispersed. Mention
is made of the Soviet effort to establish laser contact with the moon and of the
introduction of new developments into the fields of medicine, meteorology, and

computing machinery. A brief biographical sketch of the two Soviet laureates is given.

ASSOCIATION: none

SUBMITTEL: 00

ENCL: 00

SUB CODE: GP

NO REF SOV: 001

OTHER: 000

Card 2/2

KORETS, M.A. (Moskva); PONIZOVSKIY, Z.L. (Moskva)

Unsolved problems of astrophysics. Priroda 54 no.9:118-120
S '65. (MIRA 18:9)

PONIZOVSKIY, Z.L. (Moskva)

Current problems of astronomy; interview with Professor M.
Minnaert. Priroda 54 no.12:93-95 D '65.

(MIRA 18:12)

KOROTIS, M.A. (Moskva); PONIZOVSKIY, Z.L. (Moskva)

Method of registering solar neutrinos. Priroda 54
no.12:118-119 D '65.

(MIRA 18:12)

L 45113-66 EWT(1) GW/WS-2

ACC NR: AP6016332 (N)

SOURCE CODE: UR/0026/65/000/012/0093/0095

70
69
B

AUTHOR: Ponizovskiy, Z. L. (Moscow)

ORG: none

TITLE: Present-day problems in astronomy

SOURCE: Priroda, no. 12, 1965, 93-95

TOPIC TAGS: astronomy, sun, chromosphere, galaxy, Milky Way, solar physics, x ray, astrophysics, magnetohydrodynamics, molecular hydrogen, quasar, gamma ray, radio wave emission, solar flare, plasma, solar magnetic field

ABSTRACT: The author reports the statements of a Dutch professor of astronomer made during his visit to the USSR. The professor pointed out that astronomical research should concentrate on areas of astronomy in which immediate, tangible results can be obtained. Satellites, rockets, and spaceships should be used to study celestial bodies and should be equipped with ultraviolet, x-ray, and x-ray research instruments. The origin of chemical elements should be studied, as it is closely related to the problem of star development. Galactic astronomy should be stressed, particularly the distribution of molecular hydrogen within the Galaxy, the origin of its

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Card 2/2

mja

ACC NR: AP7006044

SOURCE CODE: UR/0026/66/000/009/0117/0119

AUTHOR: Korets, M. A.; Ponizovskiy, Z. I.

ORG: none

TITLE: Cosmic maser

SOURCE: Priroda, no. 9, 1966, 117-119

TOPIC TAGS: maser, radio emission, strong magnetic field, star

ABSTRACT: Professor I. S. Shklovskiy reported on the most recent work on the radio emission of neutral hydrogen at a scientific session of the Division of General and Applied Physics of the Academy of Sciences. Shklovskiy feels that this radio emission is caused by the presence of a strong magnetic field. The ionized hydrogen (H II) will be situated within some sphere and the neutral hydrogen (H I) outside it. At the boundary the neutral hydrogen is "squeezed", its density ρ increases and the magnetic field will be of the order of β , where β is close to $\frac{1}{2}$ and $\rho \sim 10^{-18}$, whereas the normal density of hydrogen is 10^{-24} . With its increase there should be an increase of OH density. From the time of fluctuations of the spectral characteristic it can be determined that the size of the sphere is about 10^{17} cm and its mass is $\approx M_{\odot}$. It can be expected that there can be a transition of hydroxyl molecules to

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ACC NR: AP7006044

higher vibrational levels. In this case "pumping" should occur due to quanta of the infrared part of the spectrum. The induced "maser" radiation then should be observed at 5.1, 2.2 and 1.4 cm. Further observations are required to determine whether such radiation exists. Shklovskiy believes that a "cosmic maser" arises where there is a condensation of the interstellar medium with a density of approximately 30,000 times more than the mean value. Such condensations apparently are protostars. Due to the great intensity of radiation of such a maser radioastronomers can judge the birth of a star even in the most distant corner of the Galaxy. [JPRS: 38,937]

SUB CODE: 03, 20

Card 2/2

I 5249-66 FRD/EWT(1)/FCC/EWA(h) GW/WS-2

ACC NR: AP5025249

SOURCE CODE: UR/0026/65/000/009/0118/0120

AUTHOR: Korets, M. A. (Moscow); Ponizovskiy, Z. L. (Moscow)

ORG: none

TITLE: Relativistic astrophysics

SOURCE: Priroda, no. 9, 1965, 118-120

TOPIC TAGS: astrophysics, cosmic ray, cosmic radio source, galaxy, metagalaxy, special relativity theory, cosmology, astronomic conference

ABSTRACT: A session of the working committee on relativistic astrophysics met in May 1965 to discuss problems dealing with quasars and cosmic rays. On the basis of comparative energy-density studies, V. L. Ginzburg and S. I. Syrovatskiy have concluded that the cosmic rays in the vicinity of the earth cannot possibly be of metagalactic origin if there is isotropic cosmic-ray propagation in the metagalaxy and no cosmic-ray "pumping" mechanism in the Galaxy. S. B. Pikel'ner has advanced the theory that a kind of "magnetic bridge" exists between some galaxies such that the metagalactic cosmic rays are anisotropic and reach the

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L 5219-66

ACC NR: AP5025249

Galaxy in significant quantities. Ginzburg rejects this theory on the ground that all evidence indicates a high degree of cosmic-ray isotropy. Ginzburg holds, rather, that the cosmic rays observed near the earth were created in the Galaxy as the result of the explosion of supernovae. I. S. Shklovskiy believes that some cosmic rays must come from those sectors of the metagalaxy in which their density is great as, for example, in the Centaur A radio galaxy where the cosmic-ray density is 100 times that in the Galaxy. However, many questions (galactic boundaries, mechanism of heating the metagalactic medium, and the mechanism of cosmic-ray generation and acceleration) remain unanswered.

On the matter of quasars Shklovskiy reports that five more quasars have been identified recently with optical sources. On the basis of red-shift observations, they are not less than 6—8 billion light years away. A rough model of a quasar shows a denser central part having a diameter of about 400 billion km surrounded by a gas envelope extending some 5—30 light years. This, in turn, is surrounded by a radiowave-emitting region extending hundreds of light years. The angular dimensions of a quasar have been found to decrease with wavelength and in the infrared region can have the same dimensions as the nucleus described. Shklovskiy maintains that quasars represent a normal active stage in the

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I. 5249-66

ACC NR: AP5025249

creation of radiogalaxies and the active stage in the evolution of nuclei in galaxies already formed. The chemical composition of quasars is identical to that of planetary nebulae, i.e., to the classical composition of the interstellar medium.

Shklovskiy notes an analogy between Seyfert galaxies and quasars. Analysis of the spectrum of Seyfert galaxy NGC-1275 shows that the source of shortwave radiation in this galaxy is very small—about 0.5 light years. Essentially this small object possessing intense nonthermal radio-emission only differs from quasars in that it does not appear in the visible part of the spectrum. It is possible, Shklovskiy concludes, that the nuclei of Seyfert galaxies contain "invisible quasars." The reason for the ionization and excitation of the gases in the nuclei of Seyfert galaxies is the x-radiation of these invisible quasars. [FSB: v. 1, no. 12]

SUB CODE: AA / SUBM DATE: none

Card 3/3

KORETS, M.A. (Moskva); PONIZOVSKIY, Z.L. (Moskva)

Laureates of the Nobel Prize in physics for 1964. Priroda
54 no.1:112-114 Ja '65. (MIRA 18:2)

10408-65 EWT(g) DIAAP/APWL/SSD/ESD:1 S/0026/64/000/010/0110/0111
ACCESSION NR: AP4047100

AUTHOR: Ponizovskiy, Z. L.

TITLE: A significant achievement of Soviet science. Discovery of
element 104

SOURCE: Priroda, no. 10, 1964, 110-112

TOPIC TAGS: element 104, element 104 synthesis, nuclear physics

ABSTRACT: A popular science-type article reports some details on
the synthesis of element 104 which took place in March 1964 and was
the synthesis of element 104 which took place in March 1964 and was
the synthesis of element 104 which took place in March 1964 and was

L 10408-65

ACCESSION NR: AP4047100

designed in the USSR, was used. The energy was 8.5 Mev per nucleon of accelerated particle, i.e., 22-187 Mev for neon, and the intensity of the particle beam was 50-100 μ amp. A contributing factor to this success was the practically background-free, phosphate, glass-fission-fragment detector which was used. Orig. art. has: 2 figures.

ASSOCIATION: none

SUBMITTED:

ATD PRESS: 3119

ENCL: 00

SUB CODE: 00

ILL, M.; PONIZOVSKIY, Z.L. [translator]

Artificial satellites and the density of the atmosphere. Priroda 53
no.4:83-85 '64.
(MIRA 17:4)

1. Observatoriya Bayya, Vengriya.

PONIZOVTSSEV, A.M.

"Welding two-layer steel apparatus for the chemical and petroleum industries; instructions." Book review by A.M. Ponizovtsev,
Avtom. svar. 15 no.12:86 D '62. (MIRA 16:2)
(Chemical apparatus---Welding)
(Laminated metals---Welding)

S/125/60/000/03/002/018
D042/D001

25(1)

AUTHORS: Kakhovskiy, N.I. and Ponizovtsev, A.M.
TITLE: Welding¹⁸ and Patching Cavities in Castings¹⁸ of "1Kh2ON3G3D2L" Steel
in Carbon Dioxide

PERIODICAL: Avtomaticheskaya svarka, 1960, Nr 3, pp 12-18

ABSTRACT: Information is given on experiments with welding "1Kh2ON3G3D2L" ferrite-austenite steel which is to replace the rapidly wearing and corrosive "20GSA" steel used for blades and other parts of hydro-turbines. The development of welding technology for the new steel was the purpose of experiments conducted at the Khar'kovskiy turbinnyy zavod (Khar'kov Turbine Plant) /Ref. 1/. the TsNIITMASH /Ref. 2/ and the Institute of Electric Welding imeni Ye.O. Paton UkrSSR /Ref. 3/. The composition of the "1Kh2ON3G3D2L" steel is the following (in %): up to 0.10 C; 2.3 - 3.0 Mn; 0.3 - 0.5 Si; 18.5 - 20.5 Cr; 3.0 - 3.5 Ni; 1.8 - 2.3 Cu; and not more than 0.03 each of S and P. The porosity in welds in experiments with powder metal wire was eliminated by the addition of Na₂SiF₆ into the wire composition

Card 1/2

25(1)

S/125/60/000/04/004/018
D042/D006

AUTHORS: Kakhovskiy, N.I. and Ponizovtsev, A.M.

TITLE: Welding "1Kh2ON3G3D2L" and "20GSL" in Carbon Dioxide

PERIODICAL: Avtomaticeskaya svarka, 1960, Nr 4, pp 22-26 (USSR)

ABSTRACT: The described experiments were carried out to find the proper welding process conditions for welding the two above mentioned steels. It was suggested at a turbine plant to make cast-welded runners for hydraulic turbines, i.e. with blades of ferrite-austenite "1Kh2ON3G3D2L" steel welded to upper and lower rims made of "20GSL" steel. The article gives details of experiments carried out for this purpose with semiautomatic welding in CO₂. "1Kh2ON3G3D2L" steel was made up of: 0.10% C, 3.0% Mn, 0.49% Si, 20.0% Cr, 3.0% Ni, 2.0% Cu, and "20GSL" steel of:

Card 1/2



8/125/60/000/012/011/014
A161/A030

AUTHORS: Kakhovskiy, N.I.; Langer, N.A.; Ponizovtsev, A.M.
TITLE: Electrode Wire for Welding Low-Alloy Steel Ship Hulls in Carbon Dioxide

PERIODICAL: Avtomaticheskaya svarka, 1960, No. 12, pp. 75 - 78

TEXT: Welds made in CXЛ (SKhL) type ship hull steel by УОНН-13/45А (UONI-13/45A) electrodes in manual welding, as well as by Св-08Г2С (Sv-08G2S) wire semi-automatically in CO₂ have a low corrosion resistance in sea water. The reason for this is a lower electro-chemical potential in weld metal than in base metal, i.e., the weld forms the anode in the couple. An addition of 0.7 - 1.0% chromium to weld metal raises the corrosion resistance. The Electric Welding Institute im. Ye. O. Paton has developed a new electrode wire that is recommended for use and called Св-08ХГС (Sv-08KhGS). Its chemical composition is: up to 0.10% C; 1.4 - 1.7% Mn; 0.60 - 0.85% Si; 0.8 - 1.1% Cr; maximum 0.3% Ni; and maximum 0.03% S and P (each). The experiments were carried out with powder wire of different compositions, made in a special machine by bending low-carbon steel tape into a pipe and filling the pipe simultaneously with powder. The filled pipe

Card 1/2

KAKHOVSKIY, N.I.; LANGER, N.A.; PONIZOVTSY, A.M.

Electrode wire for welding low-alloy steel ship hulls in an atmosphere of carbon dioxide. Avtom. svar. 13 no.12:75-78 D '60.
(MIRA 13:11)

1. Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im.Ye.O.
Patona AN USSR.
(Ships--Welding) (Protective atmospheres)

AUTHORS:

SOV-135-58-2-2/18
Kakhovskiy, N.I., Candidate of Technical Sciences, and Poni-
zovtsev, A.M., Engineer

TITLE:

The Automatic Welding of 20KhMA-Steel in Carbon Dioxide
(Avtomaticheskaya svarka stali 20 KhMA v uglekislom gaze)

PERIODICAL:

Svarochnoye proizvodstvo, 1958, Nr 2, pp 7 - 10 (USSR)

ABSTRACT:

Information is presented on tests carried out on forged and heat treated "20KhMA" steel and on the development of electrode wires for welding this steel. The described experiments permitted the optimum seam metal composition to be obtained (up to 0.10 % C; 0.9 to 1.5 % Mn; 0.25 to 0.45 % Si; 0.8 to 1.0 % Cr; 0.4 to 0.5 % Mo.) which is ensured by the use of a powder wire (0.12 to 0.14 % C; 1.9 to 2.3 % Mn; 0.8 to 1.0 % Si; 0.3 to 1.1 % Cr; 0.4 to 0.5 % Mo and not over 0.03 % S and P) or a common wire (up to 0.10 % C; 1.6 to 1.9 % Mn; 0.65 to 0.80 % Si; 0.8 to 1.1 % Cr; 0.4 to 0.5 % Mo and not over 0.03 % S and P).

Card 1/2

SOV-135-58-2-2/18

The Automatic Welding of 20KhMA-Steel in Carbon Dioxide

There are 4 tables, 4 graphs, 1 diagram, 1 photo and 5 references, 4 of which are Soviet and 1 English.

ASSOCIATION: Institut elektrosvariki imeni Ye. O. Patona AN USSR (Institute of Electric Welding imeni Ye. O. Paton, AS UkrSSR)

Card 2/2

1. Steel--Welding

AUTHORS:

Kakhovskiy, N.I. and Ponizovtsev, A.M. SOV 125-58-3-15/15

TITLE:

Automatic Welding of Movable Annular Butts Without Underlaid Support Rings (Avtomaticheskaya svarka povorotnykh kol'tsevykh stykov bez podkladnykh kolets)

PERIODICAL:

Avtomaticheskaya svarka, 1958, Nr 3, pp 93-95 (USSR)

ABSTRACT:

The article gives general information on different methods (Soviet and foreign) of welding annular butts without underlaid support rings, and describes a new technology of welding in carbon dioxide with the aid of a d.c. welding generator with special stable outer characteristics, developed at the Institute of Electric Welding imeni Ye.O. Paton. Tests were carried out on tubes of 529 mm in diameter, with a wall thickness of 8 mm. Great attention was devoted to obtaining a stable welding without burning the first seam layer. Different welding technologies and electrode positions were tested. The optimum welding technology which obtained satisfactory results is given in a table. A two-arc automatic device fed by two d.c. power sources is recommended. One of the arcs is used to weld the root layer in a semi-vertical position of the electrode. The second arc welds the next layer in a lower position of the

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SOV 125-58-3-15/15

Automatic Welding of Movable Annular Butts Without Underlaid Support
Rings

electrode.

There are 2 diagrams, 3 photographs, 1 table and 7 references, 5 of which are Soviet, and 2 English.

ASSOCIATION: Institut elektrosvarki imeni Ye.O. Patona AN USSR (Institute of Electric Welding imeni Ye.O. Paton AS UkrSSR)

SUBMITTED: September 16, 1958

1. Pipes--Arc welding 2. Arc welding--Equipment 3. Carbon
dioxide--Performance 4. Arc welding--Test results

Card 2/2

USCOM-DC-60049

KARHOVSKY, N.J.; PONIZOVN, N.; VASHIL'EV, V.G.; LENTS, P.G.

Welding in carbon steels of compound joints in 15Kh19M2L
steel with those 15Kh19M2L and 20Kh19M2L. Avtom. svar. 24
no. 11:20-26 N 161. (MIPA 14:10)

1. Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki
imeni Ye.O. Patona AN USSR.
(Steel-Welding)

L 41269-66 EWT(m)/EWP(w)/EWP(v)/T/EWP(t)/EII/EWP(k) IJP() JD/HM
 ACC NR: AP6021007 (N) SOURCE CODE: UR/0125/66/000/006/0050/0054 34
 36
 8

AUTHOR: Kakhovskiy, N. I.; Ponizovtsev, A. M.; Vivsik, S. N.; Nikolayenko, M. R.

ORG: [Kakhovskiy, Ponizovtsev] Institute of Electric Welding im. Ye. O. Paton, AN UkrSSR
 (Institut elektrosvarki im. Ye. O. Patona AN UkrSSR); [Vivsik, Nikolayenko] Podol'sk Plant
im. Ordzhonikidze (Podol'skiy zavod im. Ordzhonikidze)

TITLE: Welding of EI756 high-temperature chromium steel

SOURCE: Avtomaticeskaya svarka, no. 6, 1966, 50-54

TOPIC TAGS: high temperature chromium steel, welding flux, welding electrode, steam
 auxiliary equipment/EI756 (IKh12V2MF) high-temperature chromium steel, AN-17 welding
 flux, EP-249 welding electrode, EP-390 welding electrode

ABSTRACT: EI756 (IKh12V2MF) high-temperature chromium steel belongs in the martensitic-
 ferritic class and is used to manufacture the blades of steam and gas turbines as well as
 superheater tubes and steam lines. The article deals with the problem of selecting a flux
 which, in a combination with the use of specially developed EP-249 and EP-390 wire elec-
 trodes, would assure optimizing the chemical composition of the weld metal. Experiments

UDC: 621.791.7:669.15-194:669.26

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L 41269-66

ACC NR: AP6021007

with the butt welding of 36 mm thick joints of EI756 steel showed that the AN-17 low-silicon oxidizing flux is the most suitable for this purpose and facilitates best the separation of the slag crust, and that EP-390 electrode wire (Nb-free) is superior to EP-249 electrode wire, since Nb-free welds display a stress-rupture strength of 10 kg/mm² after 100,000 hr at 600°C and, moreover, during long-time tests, they display higher plasticity and impact strength. The optimal parameters of the butt welding of tubes measuring 273x36 mm in diameter were found to be: welding current 200-220 a, voltage 28-30 v, welding rate 10-12 m/hr (such a moderate of automatic welding regime is a prerequisite for obtaining a weld metal that is free of hot cracks), with slow subsequent cooling (by not more than 150°C/hr). The cooling is followed by tempering at 740-760°C for 5 hr. The metal of the resulting weld displays satisfactory short- and long-time mechanical properties. Orig. art. has: 6 figures and 4 tables.

SUB CODE: 13,11/

SUBM DATE: 25June65/

ORIG REF: 004

Card 2/2 *LC*

PONIZOVTSSEV A.M.

KAKHOVSKIY, N.I.; PONIZOVTSSEV, A.M.

Automatic welding of rotatable circular joints without backing. Avtom.
svar. 11 no.3:93-96 Mr '58. (MIRA 11:4)

1. Ordens Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye.O.
Patona AN USSR.
(Electric welding)

PONIZOVTSSEV, A.M.

KAKHOVSKIY, N.I.; PONIZOVTSSEV, A.M.

Welding St.4 and SKhL-1 steels in an atmosphere of carbon dioxide.
Avtom. svar. 10 no.5:61-63 S-O '57. (MIRA 10:12)

1. Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye.O.
Patona AN USSR.
(Steel--Welding) (Protective atmospheres)

PONIZOVTSOV, A.M.

KAKHOVSKIY, N.I., kand. tekhn. nauk; PONIZOVTSOV, A.M., inzh.

Automatic welding of 20KhMA steel in an atmosphere of carbon dioxide.
Svar. proizv. no.2:7-10 F '58. (MIRA 11:2)

1. Institut elektrosvarki imeni Ye.P. Patona AN USSR.
(Steel--Welding) (Protective atmospheres)

PONIROV TSE V, A.M.

25(1)
 Abstracts from USSR, Elger, Institut elektrosvariv izni akademii Ye. O. Paton
 Vvedeniye novykh spetsyov svarki v promyshlennost', vyp. 2 (Introduction of
 New Welding Methods in Industry: Collection of Articles, No. 2) Kiev, Co.
 izdatel'stvo. 114-ty Ukrainsky SSR, 1959. 194 p. Errata slip inserted.
 5,000 copies printed.

M.: V. Garmash; Tech. Ed.: S. Metusovich.

NOTE: This book is intended for workers in the welding industry.

COVERAGE: The book contains a discussion of welding techniques and problems by
 groups of scientists and welders. Much attention is given to problems in the
 application of electric welding and electroslag welding.
 This is the second collection of articles under the same title prepared and
 published by the Institut elektrosvariv izni Ye. O. Paton (Institute of
 Electric Welding izni Ye. O. Paton). The previous edition was written by S. S. Paton,
 Academician of the Ukrainian Academy of Sciences and Winner of the Lenin Prize.
 There are no references.

Editor: A. A. [Candidate of Technical Sciences; Institut elektrosvariv
 izni Ye. O. Paton (Electric Welding Institute izni Ye. O. Paton)], and
 V. F. Zabolotnyy (Chief Engineer; Khar'kovskiy elektrotroitel'nyy zavod (Khar'kov
 Shipbuilding Plant)). Automatic Welding in Shipbuilding 129

Yablun, Yu. S. (Engineer), S. G. Kamenin (Candidate of Technical
 Sciences), N. I. Kabanovskiy (Candidate of Technical Sciences), A. M.
 Potomkin (Engineer; Institut elektrosvariv izni Ye. O. Paton),
 Institut Elektrosvariv izni Ye. O. Paton], S. I. Gerasim (Candi-
 date of Technical Sciences, Chief of Welding Laboratory; Khar'kovskiy
 zavod imeni S. M. Kirova (Khar'kov Turbine Plant izni
 S. M. Kirov)), and E. L. Klyuchitskiy, Chief of Welding Section; Bryan-
 skiy mashinostroitel'nyy zavod (Bryansk Machinery Plant)). Carbon-
 dioxide shielded welding in production of steam turbines. 137

Zaruba, I. I. (Candidate of Technical Sciences), and A. G. Ponomarevskiy
 (Senior Engineer; Institut elektrosvariv izni Ye. O. Paton). Introduction of Automatic
 Welding Institute izni Ye. O. Paton]. Introduction of Automatic Welding
 Semi-automatic Carbon-dioxide Shielded Welding 148

Podomnyy, B. I. (Candidate of Technical Sciences), A. G. Potan'yevskiy
 (Senior Engineer; Institut elektrosvariv izni Ye. O. Paton (Electric
 Welding Institute izni Ye. O. Paton)); P. A. Rezin (Senior Engineer;
 Khar'kovskiy zavod imeni S. M. Kirova (Khar'kov Turbine Plant izni
 S. M. Kirov)), Supervisor of the Welding Laboratory; Stalingradskiy
 zavod imeni S. M. Kirova (Stalingrad Branch of State Design and Scientific
 Research Institute for Petroleum Machinery)), and S. A. Zauberg (Chief
 of Welding Office; Stalingradskiy zavod imeni S. M. Kirova (Stalingrad
 Branch of State Design and Scientific Research Institute for Petroleum
 Machinery Plant izni Petrov)). Development and Introduction of New Techniques in Automatic Submerged-arc
 Welding of Two-ply Steel With Stainless Chromium Facing 157

Prokhor, M. I. (Engineer; D. M. Rubkin (Candidate of Technical Sciences;
 Institut elektrosvariv izni Ye. O. Paton (Electric Welding
 Institute izni Ye. O. Paton)), V. A. Verbitskiy (Engineer; Izt
 Promyshlennosti (Production Assembly Trust)) and V. A. Verbitskiy (Chief
 Engineer; zavod "Bol'shevol'skiy" (Bol'shevol'skiy Plant)). Experience Gained
 in Welding Containers Made of Aluminum and Its Alloys 175

Amis, A. Ye. (Candidate of Technical Sciences; Institut elektrosvariv
 izni Ye. O. Paton (Electric Welding Institute izni Ye. O. Paton)),
 S. G. Gerasimov (Engineer), A. V. Pyrkovskiy (Engineer; Zhdanovskiy
 zavod imeni D. I. Zhidankina (Plant izni D. I. Zhidankin)), and S. V. Junger
 (Engineer; Stalingradskiy zavod imeni D. I. Zhidankin), and S. V. Junger
 State Design and Scientific Research Institute for Petroleum Machinery)).
 High-strength Steels for Weldments 185

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L 15736-65 EWP(e)/EWT(m)/EWA(d)/EWP(v)/EWP(t)/EWP(k)/EWP(z) Pf-4 MJM/JD/HW/
ACCESSION NR: AP4044915 HW/HB S/0226/64/000/004/0091/0096

AUTHOR: Kakhovskiy, N. I.; Ponizovtsev, A. M.; Andriyevskiy, R. A.;
Solonin, S. M.

TITLE: Welding of porous high-alloy Kh17N2 steel

SOURCE: Poroshkovaya metallurgiya, no. 4, 1964. 91-96 B

TOPIC TAGS: stainless Kh17N2 steel, sintered Kh17N2 steel, sintered
stainless steel welding, weld metal property, weld metal corrosion
resistance 18

ABSTRACT: Plates, 40 x 60 x 3 mm, and bushings, 50--70 mm in diameter with a porosity varying from 30 to 60%, made by the powder-metallurgy method from Kh17N2 stainless steel powder (0.15 g/cm³)

... welding ... mm thick metal were: electrode

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ACCESSION NR: AP4044915

diameter, 1.0--1.2 mm; current, 70--80a; voltage, 8--9v; welding
speed, 18--22 m/hr. For thinner metal the current should be lower.
Filler wire should be used in ...

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able, ... figures and 1

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"APPROVED FOR RELEASE: 06/15/2000

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SUBMITTED: 17Apr63

ENCL: 00

SUB CODE: MM, IE

NO REF SOV: 002

OTHER: 002

Card 3/3

APPROVED FOR RELEASE: 06/15/2000

CIA-RDP86-00513R001342110010-8"

KAKHOVSKIY, N.I.;_PONIZOVITSEV, A.M._

Effect of certain hardening and stabilizing elements on the microstructure and properties of weld joints in high chromium heat-resistant steels. Avtom. svar. 17 no.2:23-29 F '64.

(MIRA 17:9)

1. Institut elektrosvariki im. Ye.O. Patona AN UkrSSR.

ACCESSION NR: AP4013079

S/0125/64/000/002/0023/0029

AUTHOR: Kakhovskiy, N. I.; Ponizovtsev, A. M.

TITLE: Effect of some hardening and stabilizing elements upon the microstructure and properties of high-chromium heat-resisting steel welds

SOURCE: Avtomaticheskaya svarka; no. 2, 1964, 23-29

TOPIC TAGS: welding, steel welding, heat resisting steel welding, high chromium weld, heat resisting steel weld, steam turbine steel

ABSTRACT: An experimental investigation of the effect of C, W, V, Nb, and Ti upon the microstructure, short-time mechanical properties, and long-time strength of a weld metal containing 10-12% Cr is reported. It is found that the contents of the above elements should be such that both the formation of a structurally free ferrite and the solving V in the solid solution are precluded. Experimental multilayer welds were produced with 15Kh11MFB steel by arc welding in CO₂ with

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ACCESSION NR: AP4013079

powdered-metal 3-mm wires of various compositions. The mechanical characteristics of the weld metal at 20C and at 600C and the time for the destruction of a specimen loaded with 16-22 kg/mm² at 600C are reported. An experimental solid welding wire was developed (composition reported) for mechanized arc welding of high-Cr steels. Orig. art. has: 6 figures and 3 tables.

ASSOCIATION: Institut elektrosvariki im. Ye. O. Patona AN UkrSSR (Institute of Electric Welding, AN UkrSSR)

SUBMITTED: 04Jun63 / DATE ACQ: 26Feb64 ENCL: 00

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S/125/61/000/011/003/012
D040/D113

AUTHORS: Kakhovskiy, N.I., Ponizovtsev, A.M., Vasil'yev, V.G., and
Lents, R.O.

TITLE: Welding of combination joints of 15Kh11MFB steel with 15Kh1MF
and 20 KhMF steels in CO₂

PERIODICAL: Avtomaticheskaya svarka, no. 11, 1961, 20-26

TEXT: Results are given of experiments, conducted to work out recommendations
for the welding in CO₂ of the new heat-resistant 15X11MФБ (15Kh11MFB)
steel, proposed by the Leningradskiy metallicheskiy zavod (Leningrad Metal
Plant). Data is given on the welding of combined joints of this steel with
pearlitic steels used for steam turbines - 15X1M1Ф (15Kh1MF) and 20XМФ
(20KhMF). Their composition is as follows: ✓

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Table 1.

Chemical composition in %

	<u>C</u>	<u>Mn</u>	<u>Si</u>	<u>Cr</u>
15Kh11MFB	0.12-0.19	0.5-1.0	≤ 0.5	10-11.5
15Kh1M1F	0.14-0.20	0.4-0.7	0.17-0.37	1.2-1.7
20KhMF	0.18-0.25	0.4-0.7	0.15-0.37	0.9-1.2
	<u>Ni</u>	<u>Mo</u>	<u>V</u>	<u>Nb</u>
15Kh11MFB	0.6-1.0	0.6-0.8	0.20-0.35	0.10-0.25
15Kh1M1F	-	0.9-1.2	0.25-0.35	-
20KhMF	-	0.5-0.7	0.20-0.30	-

Satisfactory welds were obtained in butt joints with U-shaped edges in 60-70 mm thick steel plates using 320-350 amp, 28-30 v, 20 m/hr speed and 16-17 l/min CO₂, preheating to 350°C and cooling in air after welding, fol-

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Welding of combination joints ...

lowed by 10 hours tempering at 720°C with cooling in furnace to 200-250°C and finally in the open air. Somewhat higher hardness in the fusion zone compared to the weld and base metal was due to higher content of carbides, but the mechanical strength of the joints was satisfactory. Semiautomatic annular butt welding in pipes with 30-40 mm walls was carried out in the horizontal position with pipe edges shaped into an unsymmetric U; the weld root was welded with 1.0 mm wire, d.c. of 180-200 amp, 20-22 v, and the beads with 1.6 mm wire, 230-250 amp, 26-28 v. Two different semiautomatic welders were used for wire of different diameter and into the welding circuit was connected an PCT9-24 (RSTE-24) choke, which reduced spatter and stabilized the arc. *Св-08ХГСМФ* (Sv-08KhGSMF) and *Св-08Х2ГСМФ* (Sv-08Kh2GSMF) welding wires can be used for the pearlitic steel. Data on wires of this type is to be found in other Soviet publications (Ref. 1: B.S. Kasatkin, Yu.N. Vakhnin, "Avtomaticheskaya svarka", no. 3, 1958; Ref. 2: B.S. Kasatkin, Yu.N. Vakhnin, "Avtomaticheskaya svarka", no. 11, 1959). The following conclusions were drawn: (1) Sv-08KhGSMF and Sv-08Kh2GSMF wire may be employed; (2) Semiautomatic CO₂ welding of annular joints must be

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carried out in horizontal position. Thinner wire must be used for the root of the joint, and 1.6 mm wire may be used for the remaining layers of the weld to speed up the process. The use of inductive resistance in the welding circuit is advisable. There are 7 figures, 6 tables and 2 Soviet references.

ASSOCIATION: Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye.O.Patona AN USSR (Electric Welding Institute "Order of the Red Banner of Labor" im. Ye.O.Paton of the AS UkrSSR)

SUBMITTED: May 9, 1961

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1ST AND 2ND COLUMNS		PROCESSES AND PROPERTIES INDEX		3RD AND 4TH COLUMNS	
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ASS-SLA METALLURGICAL LITERATURE CLASSIFICATION		REGION DOMINANT		ESTIMATE ONE ONLY 1ST	
FROM STIMULUS		ESTIMATE ONE ONLY 2ND		ESTIMATE ONE ONLY 3RD	
ESTIMATE ONE ONLY 4TH		ESTIMATE ONE ONLY 5TH		ESTIMATE ONE ONLY 6TH	

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